CHAPTER III

RESEARCH METHODOLOGY

A. Time and Place of the Study

In this study, the writer held the study in line with time given by the school and the department of religion. Whereas, the maximum time that writer needed to conduct this study were two months or appropriate to the time given by IAIN Palangka Raya, started from 1 October- 1 December 2014.

After the time of research that the writer needed was approved, then the writer started to conduct the research. First step, the writer conducted try out at tryout class (IV-A) on October 9th, 2014. The writer conducted tryout in order to prove the tests were suitable to the students who were the sample of this study. Second step, the writer calculated the students' score got from tryout activity, and then measured the validity, the reliability and the difficulty level of test items on October 10th, 2014.Third step was pretest. The writer conducted Pretest on October 20th, 2015 at experiment class (IV-B), in order to measure the students score before treated using flashcard, pretest also functioned as the research data that is to be compared with posttest score. Fourth step, on October 21th, 2014 the writer calculated the students' score got in pretest. Fifth step, the writer conducted treatments to the class experiment (IV-B) started on October 25th,November 2014. In this step, the writer used flashcard as the media in teaching learning process, there were 4 (four) meeting. Afterward, the sixth step was posttest. On November

8th 2014, the writer conducted the posttest, in order to know the students' scores after treatments.

Meanwhile, the place of this study was at MIS NU Palangka Raya.It was located in Jl.Dr. Murjani Palangka Raya. The school consists of first grade to sixth grade. This study was applied for fourth grade students (IV-B) of MIS NU Palangka Raya.

B. Approach and Type of the Study

In this research, the writer used the quantitative approach, Quantitative research is 'Explaining phenomena by collecting numerical data that are analyzed using mathematically based methods (in particular statistics).[42]It means the writercollected the data that contain of numerals and itanalyzed by statistic method.

In this study, the writer uses experimental method. It belongs to the pre experimental design by utilizing One-group Pre-Test/Post-Test Design. It is one of the most frequently use designs in education.

It can be diagrammed as follow:

Pretest	***Independent variable***	***Posttest***
Y1	X	Y2

One Group Pretest-Posttest Design[43]

Where:

Y1 : Pre-test

Y2 : Post-test

[42] Daniel Muijs, *Doing Quantitative Research in Education*, London: Sage Publications, 2004, p.1.

[43] Donald Ary, *Introduction to Research in Education*, New York: CBS College Publishing, 1985, p. 270.

X : Independent Variable

The effects of the experimental treatment are determined by comparing the pretest and posttest scores.[44]

In this pre-experimental study, the writer taught vocabulary to the IV-B Students of MIS NU. Firstly, the writer conduct the pretest by giving the pretest items to the students, in order to measure the students' capability in mastery vocabulary especially about name of animals before using flashcard media. Secondly, the writer taught the students for four times by using picture media. Third, the writer conduct the posttest in order to measure the students' mastery after the writer gave treatment to the students.Here were the steps:

1. Administration of a Pretest measuring the dependent variable.
2. Implementation of the Experimental treatment (independent variable) for participants.
3. Administration of a Posttest that measures the independent variable again.

In this experiment, the writer taughtthe students directly. First, the writergave pre-test to students in order to measure the students' mastery in English vocabulary based on the topic, before using flashcard media. Second, the writer taught the students for four times by Flashcard media. Third, the writer gavepost-test to the students in order to measure the students' mastery after treatment.

[44] Meredith D. Gall and Joyce P. Gall, *Educational Research an Introduction*, United State of America: Pearson Education, Inc. 2003. p. 389.

The description schedule of conducting the experiment is shown in the following table:

Table 3.1
Schedule of the Research at MIS NU Palangka Raya

NO	DATE	ACTIVITY	ALLOCATION OF TIME	MEETING
1.	October 20th, 2014	Pre-Test	1 X 35	1st
2.	October 25th, 2014	Animals	1 X 35	2nd
3.	October 27th, 2014	Animals	1 X 35	3rd
4.	November 1st, 2014	Zoo Animals	1 X 35	4th
5.	November 3rd, 2014	Zoo Animals	1 X 35	5th
6.	November 8th, 2014	Posttest	1 X 35	6th

The process of research and teaching were started from 20th October 2014 till 8th November 2014. There is one time for pretest, four times for treatment and one time for posttest.

In other word, there were sixmeetings. Meanwhile, Pre-Test did in the first meeting, before the writer gave the treatment and then the writer did four times meeting for the treatments andPost-Test did in the last meeting or after the treatment. Therefore, the total meetings were six (6) times.

C. Population and Sample

1. Population

Population is whole of indication that will be researched.[45] Djawranto in Kuntjojo also states that population is entire number of units or the characteristic of individual which want to researched. And the units named analysis unit, and can be people, institutions, things, ect. ThePopulation of this study wasfourth grade students of MIS NU Palangka Raya, there were sixty two students.

2. Sample

Fernandez in Suharto states, sample is a set of smallest group which given treatment and give respond as self–supporting.[46]In this study, the writer used purposive sampling technique in choosing the sample of the study, it supported by the English teacher's suggestion that the research will be better if the study held in the IV-B class because the class got lower score than class IV-A in the latest test that held by the school, As Kuntjojo said in his book entitled Metodologi Penelitian. The drawing of sample by purposive is the way of taking sample which done by choosing the subject based on specific criteria determined by the researcher.[47]In this case, the sample of this study is all the IV-B students at MIS NU Palangka Raya, the numbers of students are about 31 students. According to Arikunto, just for estimation, if the subjects are fewer than one

[45]Bambang Prasetyo and Lina Miftahul Jannah, *Metode Penelitian Kuantitatif Teori dan Aplikasi*, Jakarta: PT. Raja Grafindo., p.119.

[46]G. Suharto, *Suatu Pengantar Metode Penelitian Dalam Pendidikan Bahasa*, Jakarta: Depdikbud, Direktorat Jendral Pendidikan Tinggi Proyek Pengambangan Lembaga Pendidikan Tenaga Kependudukan, 1988, p. 68.

[47]Kuntjojo, *Metodologi Penelitian,* Kediri: E-Book, 2009, p. 32.

hundred, it is better to take all the subjects, so the research is called by population research.[48]

D. Data Collecting Techniques

Test

Test is a short examination of knowledge or ability, consisting of questions that must be answered.[49] The writer gave some test for the students about English vocabulary. In this study, pretest used to describe the students' mastery in English vocabulary before conducting treatments. And posttest used to describe the students' mastery in English vocabulary after conducting the treatments.

The type of the test that used by the writer was multiple choice, as Heaton stated in his book entitled Classroom Testing, that multiple choice questionsbasically justto testthe acquisition ofvocabulary. However, this test is alsousedtotestbothgrammarandlistening and reading skills.[50]

Based on the statement above, the writer decided to use the multiple choices test in this research in order to get the data needed. Therefore, the multiple choices were used in tryout, pretest and posttest.

E. Data Processing Procedure

a. The writer observed the class.

1. Checking the number of class
2. Checking the number of the students
3. The class activity

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[48]Suharsimi Arikunto, *Prosedur Penelitian*,Jakarta: PT. Rineka Cipta, 2006, p. 112.

[49]Hornby, A.S. *Oxford Advance Learner's Dictionary,* New York: Oxford University Press, 1984, p. 1233.

[50] Heaton, J. *Classroom Testing.* Harlow:Longman,1990,p.79

b. The writer determined the class into try out class and experiment class andclassified the data by giving identity S and EX are the codes for each try out and experimental class.

c. After giving codes to each result of the test, the writer gave scoring based on the formulation below:

$$\text{Scores} = \frac{\text{B}}{\text{N}} X100$$

Where:

B : Frequency of the correct answer

N : Number test of Items

100 : Constant multiplier

d. Finally, the writer classified the students' score by using the Evaluation Standards of English Subject to know that they pass or fail. The students master the vocabulary if they got scores seventy or more, but the students did not master vocabulary if they get fewer than sixty nine.

e. The last process, the data inserted to a certain table and arrange the numbering then calculated them.

F. Procedure of Collecting Data

Collecting data is the most important step in conducting the research. The writer used some tests to collect the data and analyzed the test to get its validity, reliability of the test.

a. Instrument of Try Out

In order to prove the tests were suitable to the students who were the sample of this study, the writerconducted a try out test. The writer choosedIV-A

class to try out the test items.The tryout test conducted at the IV-A students of MIS NU Palangka Raya on October 9 2014. If the result was valid, it means that the test items as the instrumentation of this study were suitable to be given. These were the procedures that in carrying out this try out as follows:

a. Preparing the instrument.
b. Telling the students how they must do with the test of try out.
c. Giving the test items to the students.
d. Collecting to the student's work.
e. Calculating the result of the test
f. Analyzing the result of the test
g. If the result is valid, it means that the test items as the instrumentation of this study are suitable to be given.

From the information given by English teacher at MIS NU about how well the individual student had mastered, the final scores wererelated to the following qualification:

Table 3.2

The Standard Evaluation

Score	Criteria
70 – 100	Mastery
0 – 69	Fail

From the result of try out, it found the instrument of validity, reliability and index of difficulty.

b. Instrument of Validity and Reliability.

After the try out, the writer measured the validity, the reliability and the difficulty level of test items.

1. Validity

Validity is a measurement which shows the grades of number of an instrument. A valid instrument must have high validity, it means that an instrument that lacks validity is said to be invalid instrument.

An instrument is called a valid one when it can measure something, which is wanted by uncovering the variable studied exactly. The method used in measuring the validation of the instrument is called content validity. A test or a measurement can be called a content test when it measures the special purpose, which is equal with the material or content given.

a) Content Validity

This kind of validity depends on a careful analysis of the language being tested and of the particular course objective. The test should be so constructed as to contain a representative sample of the course, the relationship between the test items and the course objectives always being apparent.[51] It is to measure how well the instrument gives to the students.

b) Construct Validity

It is capable of measuring certain specific characteristics in accordance with a theory of language behavior and learning. This type of validity assumes the

[51]J. B. Heaton, *Writing English Language Tests*, England: Longman, 1974, p. 154.

existence of certain learning theories or constructs underlying the acquisition of abilities and skill.[52]

The test is supposed to be made based on the precise purpose of the study. Construct validity of a test is reached when it is constructed based on the things that are intended to measure. This study conducts to measure the effect of flashcard media on vocabulary mastery. The effect of flashcard media on vocabulary mastery can be proved by scores gained in vocabulary test. So, the test items measure in this study is supposed to measure in relevance with the purpose of the study. The purpose of this study is to find the effect of flashcard media on vocabulary mastery.

In order to find the validity of test item, Product Moment Correlation has used as the formula to calculated from the tryout test result. The formula as follows[53]:

$$r_{xy} = \frac{N\left(\sum XY\right) - \left(\sum X\right).\left(\sum Y\right)}{\sqrt{\left\{N.\sum X^2 - \left(\sum X\right)^2\right\}.\left\{N.\sum Y^2 - \left(\sum Y\right)^2\right\}}}$$

Where:

r_{xy} : the coefficient of correlation

$\sum X$: score of each item of students

$\sum Y$: total score of the students

N : Number of students

Furthermore, calculated using t_{test} calculation as follows:

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[52]*Ibid*., p. 154.

[53]Riduwan, *Metode dan Teknik menyusun Tesis*, Bandung: Penerbit Alfabeta, 2008. p. 110.

$$t_{observe} = \frac{r\sqrt{n-2}}{\sqrt{1-r^2}}$$

Where:

t = the value of $t_{observe}$

r = the coefficient of $r_{observe}$

n = number of students

The distribution of t_{table} at alpha 5% and the degree of freedom (n-2) with the measurements of validity using the criteria below:

$r_{xy} > t_t$ = Valid
$r_{xy} < t_t$ = Invalid

To know the validity level of the Instrument, the results of the testinterpreted to the criteria below:

0.800-1.000 = Very High Validity

0.600-0.799 = High Validity

0.400-0.399 = Fair Validity

0.200-0.399 = Poor Validity

0.000-0.199 = Very Poor Validity[54]

The total items were 40 items, and here are two examples to calculate the validity, for the result data can be seen at the table of the Result of Instrument Try out Test.

[54]*Ibid.,*

1. Itemno1

$$r_{xy} = \frac{N(\sum XY) - (\sum X).(\sum Y)}{\sqrt{\{N.\sum X^2 - (\sum X)^2\}\{N.\sum Y^2 - (\sum Y)^2\}}}$$

$$r_{xy} = \frac{31(416) - (16).(766)}{\sqrt{\{31.16 - (16)^2\}.\{31.20670 - (766)^2\}}}$$

$$r_{xy} = \frac{12896 - 12256}{\sqrt{\{496 - 256\}.\{640770 - 586756\}}}$$

$$r_{xy} = \frac{640}{\sqrt{\{240\}.\{54014\}}}$$

$$r_{xy} = \frac{640}{\sqrt{12963360}}$$

$$r_{xy} = \frac{640}{3600.467}$$

$$r_{xy} = 0.178$$

Afterwards, the writer calculates using t_{test}:

$$t_{observe} = \frac{r\sqrt{n-2}}{\sqrt{1-r^2}}$$

$$t_{observe} = \frac{0.178\sqrt{31-2}}{\sqrt{1-0.178^2}}$$

$$t_{observe} = \frac{0.178\sqrt{29}}{\sqrt{1-0.032}}$$

$$t_{observe} = \frac{0.178 \times 5.385}{\sqrt{0.968}}$$

$$t_{observe} = \frac{0.959}{0.984}$$

$$t_{observe} = 0.975$$

$t_O < t_{table} = 0.975 < 1.697$ **Invalid**

2. Item No 5

$$r_{xy} = \frac{N(\sum XY) - (\sum X).(\sum Y)}{\sqrt{\{N.\sum X^2 - (\sum X)^2\}.\{N.\sum Y^2 - (\sum Y)^2\}}}$$

$$r_{xy} = \frac{31(540) - (20).(766)}{\sqrt{\{31.20 - (20)^2\}.\{31.20670 - (766)^2\}}}$$

$$r_{xy} = \frac{12896 - 12256}{\sqrt{\{496 - 256\}.\{640770 - 586756\}}}$$

$$r_{xy} = \frac{1420}{\sqrt{\{220\}.\{54014\}}}$$

$$r_{xy} = \frac{1420}{\sqrt{11883080}}$$

$$r_{xy} = \frac{1420}{344.718}$$

$$r_{xy} = 0.412$$

Afterwards, the writer calculates using t_{test}:

$$t_{observe} = \frac{r\sqrt{n-2}}{\sqrt{1-r^2}}$$

$$t_{observe} = \frac{0.412\sqrt{31-2}}{\sqrt{1-0.170}}$$

$$t_{observe} = \frac{0.412 \times 5.385}{\sqrt{1 - 0.170}}$$

$$t_{observe} = \frac{2.219}{\sqrt{0.83}}$$

$$t_{observe} = \frac{2.219}{0.911}$$

$$t_{observe} = 2.435$$

$t_O > t_{table} = 2.435 > 1.697$ V**alid**

Table 3.3
The Result of Instrument Try Out Test

NO	Validity Test				Interpretation
	Coefficient Correlation	T Observed	T table at 5% and df 30	Criteria	
1.	0.178	0.975	1.697	Invalid	Poor Validity
2.	0.763	6.351	1.697	Valid	High Validity
3.	0.478	2.928	1.697	Valid	Fair Validity
4.	0.285	1.601	1.697	Invalid	Poor Validity
5.	0.412	2.435	1.697	Valid	Fair Validity
6.	0.670	4.863	1.697	Valid	High Validity
7.	0.648	2.261	1.697	Valid	High Validity
8.	0.344	1.972	1.697	Valid	Poor Validity
9.	0.545	3.035	1.697	Valid	Fair Validity
10.	0.278	1.558	1.697	Invalid	Poor Validity
11.	0.493	3,052	1.697	Valid	Fair Validity
12.	0	0	1.697	Invalid	Very Poor Validity
13.	0.451	2.720	1.697	Valid	Fair Validity
14.	0.421	2.499	1.697	Valid	Fair Validity
15.	0.584	3.873	1.697	Valid	Fair Validity
16.	-0.102	-0.552	1.697	Invalid	Very Poor Validity
17.	0.511	3.2	1.697	Valid	Fair Validity
18.	0.357	2.397	1.697	Valid	Poor Validity
19.	0.424	3.008	1.697	Valid	Fair Validity
20.	-0.056	-0.303	1.697	Invalid	Very Poor Validity

21.	0.220	1.244	1.697	Invalid	Poor Validity
22.	0.174	0.951	1.697	Invalid	Very Poor Validity
23.	0.217	1.198	1.697	Invalid	Poor Validity
24.	0.386	2.255	1.697	Valid	Poor Validity
25.	-0.011	-0.059	1.697	Invalid	Very Poor Validity
26.	0.384	2.238	1.697	Valid	Poor Validity
27.	0.553	3.575	1.697	Valid	Fair Validity
28.	0.378	2.199	1.697	Valid	Poor Validity
29.	0.688	5.103	1.697	Valid	High Validity
30.	0.450	2.713	1.697	Valid	Fair Validity
31.	0.295	1.662	1.697	Invalid	Poor Validity
32.	0.393	2.303	1.697	Valid	Poor Validity
33.	0.482	2.963	1.697	Valid	Fair Validity
34.	0.469	2.861	1.697	Valid	Fair Validity
35.	0.298	1.682	1.697	Invalid	Poor Validity
36.	0.501	3.119	1.697	Valid	High Validity
37.	0.393	2.3	1.697	Valid	Poor Validity
38.	0.361	2.084	1.697	Valid	Poor Validity
39.	0.356	2.052	1.697	Valid	Poor Validity
40.	0.473	2.891	1.697	Valid	Fair Validity

2. Reliability

Reliability is a necessary characteristic of any good test for it to be valid at all. A test must first be reliable as a measuring instrument. The writer will

usethe formula of KR-20 (Kuder Richardson) to measure the reliability of the test instrument. The formula is described as follows:

$$r_{11} = \left(\frac{K}{(k-1)}\right)\left(\frac{s_t^2 - \Sigma piqi}{s_t^2}\right)$$ [55]

Where:

k = number of test items

p_i =the number of subject answer per items

q_i = 1 - p_i(1- the number of subject answer per items)

s_t^2 =total variants

Then the classifications of the reliability are:

0.800-1.000 = very high reliability
0.600-0.799 = high reliability
0.400-0.599 = fair reliability
0.200-0.399 = poor reliability
0.000-0.199 = very poor reliability[56]

The formula to find out the total variance as follow:

$$St^2 = \frac{\Sigma Y^2 - \frac{(\Sigma Y)^2}{N}}{N}$$

$$St^2 = \frac{20670 - \frac{(766)^2}{31}}{31}$$

$$St^2 = \frac{20670 - \frac{(766)^2}{31}}{31}$$

[55]Sugiyono,*Statistika Untuk Penelitian,* Bandung: Alfabeta, 2004, p. 278.

[56]Suharsimi Arikunto, *Dasar-Dasar Evaluasi Pendidikan*, Jakarta: Bumi Aksara, 1999,p. 75.

$$St^2 = \frac{20670 - \frac{586.759}{31}}{31}$$

$$St^2 = \frac{20670 - 18.927{,}613}{31}$$

$$St^2 = \frac{1.742{,}387}{31}$$

$$St^2 = 56.21$$

The formula to find out the coefficient of reliability as follow:

$$r_{11} = \left(\frac{K}{(k-1)}\right)\left(\frac{s_t^2 - \Sigma piqi}{s_t^2}\right)$$

$$r_{11} = \left(\frac{40}{(40-1)}\right)\left(\frac{56.21 - 7.9916}{7.9916}\right)$$

$$r_{11} = \left(\frac{40}{39}\right)\left(\frac{48.2184}{7.9916}\right)$$

$$r_{11} = (1.02564103)(0.85782601)$$

$$r_{11} = 0.87982155$$

$$r_{11} = 0.880$$

Table 3.4 the Result of Instrument Reliability

Coefficient KR-20	Criteria	Number of items
0.880	Very High Reliability	40

Based on the result of instrument reliability above, it was known that the coefficient of reliability was 0.880 with the Criteria Very high Reliability, it meant that the instrument could be used as the instrumentation of the study.

c) Index of Difficulty

To know the quality of instrument neither too difficult nor easy, the formulationused was:

$$P = \frac{B}{J}$$

Where:

P = Index of Difficulty

B = the number of students who answer the question correctly

J = the number of all students who follow the test

Then the classifications of the difficulty are:

0,00<0,30 = difficult

0,30-0,70 = fair

>0,70 = easy[58]

The following example will show you how the writer calculate index of difficulty, for the detail data can be seen on the table of the index of difficulty.

a. The test items Number 2

$$P = \frac{B}{J}$$

$$P = \frac{16}{31}$$

$$P = 0.52$$

The test item was **fair**

b. The test items number 7

[57]Suharsimi Arikunto, *Manajemen Penelitian*, Jakarta: Rineka Cipta, 2003, p. 230
[58]Suharsimi Arikunto, *Dasar-Dasar Evaluasi Pendidikan,* p. 210.

$$P = \frac{B}{J}$$

$$P = \frac{22}{31}$$

$P = 0.71$

The test item was**easy**

c. The test item number 9

$$P = \frac{B}{J}$$

$$P = \frac{9}{31}$$

$P = 0.29$

The test item was **difficult**

Table 3.5 Index of Difficulty

No of Item	**Index of Difficulty** $\mathbf{P = \frac{B}{J}}$			**Classification**
	Right Answer	**Number of Student**	**Total**	
1	16	31	0.52	Fair
2	16	31	0.52	Fair
3	10	31	0.32	Fair
4	30	31	0.97	Easy
5	20	31	0.65	Fair
6	20	31	0.65	Fair
7	22	31	0.71	Easy
8	27	31	0.87	Easy
9	24	31	0.77	Easy
10	23	31	0.74	Easy
11	14	31	0.45	Fair
12	31	31	1	Easy
13	26	31	0.84	Easy
14	20	31	0.65	Fair
15	9	31	0.29	Difficult
16	23	31	0.74	Easy
17	20	31	0.65	Fair
18	27	31	0.87	Easy
19	21	31	0.68	Fair
20	30	31	0.97	Easy
21	28	31	0.90	Easy
22	10	31	0.32	Fair
23	19	31	0.61	Fair

24	18	31	0.58	Fair
25	29	31	0.56	Fair
26	19	31	0.61	Fair
27	17	31	0.55	Fair
28	21	31	0.68	Fair
29	9	31	0.29	Difficult
30	10	31	0.32	Fair
31	20	31	0.65	Fair
32	12	31	0.39	Fair
33	18	31	0.58	Fair
34	11	31	0.35	Fair
35	18	31	0.58	Fair
36	17	31	0.55	Fair
37	16	31	0.52	Fair
38	23	31	0.74	Easy
39	13	31	0.42	Fair
40	18	31	0.58	Fair

Based on the result of calculation above, there were two items that were difficult, there were twenty six items were fair and there were twelve items that were easy.

The difficult items were number 15(0.29), and 29(0.29). The fair items were number 1(0.52),2(0.52),3(0.32),5(0.56),6(0.65),11(0.45),14(0.65),17(0.65),19(0.68),22(0.32),23(0.61),24(0.58),25(0.56),26(0.61),27(0.55),28(0.68),30(0.32),31(0.65),32(0.39),33(0.58),34(0.35),35(0.58),36(0.55),37(0.52),39(0.42),40(0.58). And the easy itemswere number 4(0.97),7(0.71),8(0.87),9(0.77),10(0.74),12(1),13(0.84),16(0.74),18(0.87),20(0.97

),21(0.90),38(0.74). The percentage of the try out item was 5% difficult, 65% fair, and 30% was easy.

D. Data Analysis Procedure

In order to analyze the data, the writer did some procedures below:

1. Collecting the students' vocabulary score of pretest and posttest.
2. Arranging the obtained score into the distribution of frequency of score table.
3. Calculating mean, median, modus, standard deviation and standard error of students' score.
4. Calculating the t_{test} to answer the problem of the study, whether picture media gives effect toward the seventh year students' English vocabulary score by using the following formula:

$$t = \frac{M_D}{SE_{MD}}$$

Where:

M_D = Mean of Difference between pretest and posttest score

SE_{MD} = Standard Error of Mean of Difference

5. Calculating the degree of freedom by using the following formula:

$$df = N-1$$

6. Determining the level of significant of $t_{observe}$ by comparing the $t_{observe}$ with the t_{table}.
7. Interpretation the result of analyzing.
8. Giving Conclusion